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Review Article

# Tuberculosis in Regional Australia: Ectopic Pregnancy Complicating Indolent Genital Tract Disease

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## Abstract

Female genital Tuberculosis (TB) is uncommon in Australia. It may, however, be a rarely considered cause of infertility and early pregnancy failure. We report the case of a 19-year-old migrant woman living in regional Australia who presented with ectopic pregnancy following prior treatment for genital tuberculosis. We highlight the vulnerability of migrant and indigenous Australians to chronic disease, the barriers that affect successful treatment and the strategies needed to mitigate disparity of healthcare providers not otherwise encountered in metropolitan populations.

## Introduction

Morgani first described female genital TB in his 1744 work, *De sedibus et causis morborum*, in which he performed an autopsy on a woman who died of TB peritonitis [1]. Although we have come a long way since then, genital tract TB (also referred to as urogenital TB or genitourinary TB) remains a significant affliction, affecting many women worldwide [2]. It is estimated that up to 20% of patients with clinical pulmonary TB will also be afflicted with genital tract tuberculosis [1]. Isolated genital tract TB is otherwise quite rare, accounting for an estimated 5-30% of cases.

It is rare to encounter TB in the Australian population. The risk, however, becomes graver in marginalized settings where the proportion of Indigenous and migrant Australians is higher, and patients are more likely to be stigmatized by geographical barriers to effective medical care. They tend to be burdened with co-morbidities, poor education and socioeconomic hardship, which further limit access to primary healthcare initiatives and may delay or even confound altogether the opportunity to diagnose disease early.

Genital tract TB is often asymptomatic, which further complicates diagnostic acumen. In men, it often produces a painless scrotal mass. In women, it may present as changes to menstruation or abnormal vaginal discharge [3,4] but more often remains hidden, diagnosed by serendipity as part of the investigations for infertility [5].

## Case Report

In early 2017, a 19-year-old Iranian woman living in regional Victoria presented to gynaecology outpatients with four months history of low abdominal and pelvic pain. She was not pregnant though she had been actively trying to conceive. Initial CT examination demonstrated a complex cystic mass in the right pelvic adnexa associated with free fluid. Differential diagnoses included an ovarian or adnexal cyst with partial rupture or septic mass with inflammatory suppuration. A diagnostic laparoscopy was performed with antibiotic cover. It showed copious, non-purulent peritoneal fluid and extensive milliary-like deposits affecting the bowel, liver and right pelvic serosa. There were also extensive adhesions between bowel and omentum and the anterior abdominal wall. Intraoperative specimens were taken for microscopy and culture. A physiological right ovarian cyst was identified and left intact. Unfortunately, no specific comments were recorded regarding normal pelvic anatomy. A diagnosis of genital tuberculosis was made, and the patient was transferred to the infectious disease unit for further management.

Postoperatively, a routine CT of the Chest demonstrated a cavitating lesion in the right upper lobe associated with subpulmonic effusion. This was consistent with coincident pulmonary tuberculosis. Quanti FERON-gold testing was positive; however, induced sputum PCR was inconclusive. Peritoneal fluid samples were also inconclusive; however, the diagnosis of systemic TB was upheld. The patient was treated following state-wide guidelines for best practice using a 5-drug regimen (isoniazid,




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rifampicin, ethambutol, pyrazinamide and pyridoxine) followed by an empirical 9-month course of antibiotics. Repeat pelvic ultrasound after antibiotic treatment indicated resolution of the free fluid. She travelled to Iran soon after completing her treatment and was unfortunately lost to further follow- up.

Five years later, the patient re-presented to the same hospital's emergency department with left-sided pelvic pain and vaginal bleeding. Her last menstrual period had begun five weeks earlier, and she had a positive urinary pregnancy test. On questioning, she recalled having had a miscarriage three months prior, which had resolved spontaneously. Ultrasound examination demonstrated a left-sided adnexal mass associated with a small volume of free fluid in the pouch of Douglas. She was diagnosed with a stable, ruptured ectopic pregnancy and, with consent, elected to have medical management using single-dose methotrexate. Subsequent serial, serum hCG levels returned to normal.

## Discussion

Tuberculosis (TB) is a significant cause of morbidity and mortality worldwide [6], with estimates from the World Health Organization suggesting 10 million cases in 2020 alone [7]. Tragically, in the absence of adequate treatment, 5-year survival is less than 50% [8]. The geographic distribution of TB varies widely, with two-thirds of the global burden concentrated in third-world nations [9]. Australia, as is typical of many high-income countries has an enviably low incidence of TB [10]. This is, however, a privilege not equally shared. Migrants and Aboriginal Australians are much less fortunate. They tend to live in remote or marginalized settings where access to primary health care is encumbered. They are often burdened by limited education and language difficulties, financial and housing hardships, demanding work conditions and acquired co-morbidities provoked by diet and lifestyle choices. Tragically, many vulnerable Australians are not eligible for Medicare or other government-sponsored health supports, which are further thwarted by a lack of trained healthcare professionals, leading to a paucity of vigilance and effective presence, where it most matters, in community and in reach of those who need it [11,12].

Although it accounts for only 9% of all TB, genital disease is a significant cause of female-factor infertility. It often has an indolent course, with many patients remaining asymptomatic until diagnosed opportunistically during investigation for infertility [13]. In a retrospective study of 46 patients with genital tuberculosis, 31 cases (76%) were diagnosed during evaluation for infertility [14]. In another study of patients seeking IVF, genital tuberculosis was implicated in 48% of those identified with tubal factor disease [15] most likely due to saplingo-peritonitis, causing tubal obstruction and loss of ciliary function [16,17]. Supporting studies suggest some degree of fallopian tube impairment is almost always seen in patients with genital TB [18]. The endometrium may also be affected, as may ovarian reserve and oocyte quality. If left untreated, a 2014 study found that only 20% of women will fall pregnant subsequently, compared to 59% following appropriate intervention [19]. Understandably, the risk of ectopic pregnancy is increased in women who conceive after a genital TB diagnosis, 4%, compared to 2% in the general populace [20]. Assisted reproductive technology may be helpful for many patients, particularly where tubal damage has taken the brunt of disease [20]. Unfortunately, the broader sequelae of endometrial and ovarian dysfunction may still limit response to treatment medications and subsequent implantation. Cycle success rates, even in the setting of prior comprehensive anti-tubercular treatment, remain less than half of those celebrated in other women [21]. In this report, access to assisted fertility treatment was not an option. But to be safe, to have the hope of normal life and opportunity, is not a luxury; it is a right that all should avail.

## Conclusion

TB is a disease of global importance. In our nation, despite all our advantage, the disease continues to weigh heavily on the shoulders of patients living in remote and regional communities, particularly those of Indigenous and Migrant origins. Our case highlights the aftermath of genital TB leading to early pregnancy failure. It demonstrates the vulnerability of at-risk Australians not just to this and other chronic diseases but to the implacability of isolation and scarcity that diminish access and advocacy for effective treatment. Many of these things cannot be changed, not easily. But by raising awareness, we can recognize an epidemiology of need that might otherwise remain unseen. By so doing, we empower the opportunities that can be taken so that they are effective and can make a real difference.

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